

REMARKS

The Examiner's Action mailed on February 28, 2006, has been received and its contents carefully considered.

In this Amendment, Applicant has amended independent claim 1 to include the subject matter of claim 6, and has amended independent claim 8 to include the subject matter of claim 13. Further, claims 5, 6, 12, 13, 20 and 23 have been canceled. Claims 1 and 8 are the independent claims, and claims 1-4, 8-11, 17-19, 21 and 22 remain pending in the application. For at least the following reasons, it is submitted that this application is in condition for allowance.

The Examiner has rejected claims 1, 4-6, 8, 11-13 and 17-23 as being anticipated by *Yang et al.* (USP 6,686,255). Because claims 5, 6, 12, 13, 20 and 23 have been canceled, Applicant will treat this rejection as pertaining only to the remaining pending rejected claims. It is submitted that these claims have not been anticipated by the cited reference for at least the following reasons.

It is well settled that a reference may anticipate a claim within the purview of 35 U.S.C. § 102 only if all the features and all the relationships recited in the claim are taught by the referenced structure either by clear disclosure or under the principle of inherency.

Applicant's independent claim 1 recites that the implanted oxygen ions have a peak concentration in a lower half of the silicon layer. Claim 8 recites a similar feature. The advantages of this claimed configuration are discussed in

Applicant's specification, on page 8, line 21 through page 9, line 8, and assists in preventing the lateral spreading of isolation regions in fully depleted silicon-on-insulator devices. In particular, this claimed feature ensures that the silicon layer will be oxidized through its full depth. A preferred concentration versus depth profile is illustrated in Figure 4, in which the lower half of silicon layer is the half between the center depth 124 of the silicon layer and the depth 120 of the interface between the silicon layer and the buried oxide layer. This claimed feature is not disclosed (or suggested) by the cited reference.

*Yang et al.*, in Figure 2, illustrate and disclose a silicon surface layer 14 being completely amorphized therethrough within an amorphized silicon region 14c. This reference discloses that it is not required to completely amorphize silicon region 14c, but that it is required that a dose of amorphizing implanting ions amorphizes areally completely at least a surface sublayer portion of the silicon layer, even if the amorphized silicon region does not reach completely through the silicon layer. Thus, this implies that the higher concentration of the implanted ions are located at an upper half of the silicon layer. The Examiner's Action contends that the cited reference discloses that the implanted oxygen ions have a peak concentration at a lower half of the silicon layer, and refers to column 7, lines 18-26. However, this passage of this patent only discloses that the amorphizing can be complete within the silicon surface layer 14 to a depth of the buried isolation layer 12. There is absolutely no disclosure (or suggestion) from this reference that

the peak concentration is in a lower half of the silicon surface layer 14, as would be required by Applicant's independent claims 1 and 8. Moreover, although the reference says that the implantation energy can be varied, this does not inherently or explicitly result in the peak concentration being at a lower half of the silicon layer. Instead, and as noted above, this reference implies that the peak concentration will be at the upper half of the silicon surface layer 14. Thus, it is submitted that the Examiner's Action has failed to establish a *prima facie* case of anticipation against original dependent claims 6 and 13, the subject matter of which has been added to independent claims 1 and 8. It is thus requested that this rejection be withdrawn and that these claims be allowed.

The Examiner's Action has also rejected claims 2, 3, 9 and 10 as being obvious over *Yang et al.* in view of *Prabhakar* (USP 5,869,359). However, because these claims depend from claims 1 or 8, and because *Prabhakar* does not overcome the above-noted deficiencies of *Yang et al.*, it is submitted that these claims are *prima facie* patentably distinguishable over the cited references for at least the same reasons as independent claims 1 and 8. It is thus requested that these claims be allowed and that these rejections be withdrawn.

It is submitted that this application is in condition for allowance. Such action, and the passing of this case to issue are requested.

Should the Examiner feel that a conference would help to expedite the prosecution of this application, the Examiner is hereby invited to contact the undersigned counsel to arrange for such an interview.

Should any fee be required, the Commissioner is hereby authorized to charge the fee to our Deposit Account No. 18-0002, and advise us accordingly.

Respectfully submitted,



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Date

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AMENDMENT  
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